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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/030,286	01/07/2002	Sari Korpela	297-010742-US(PAR)	9028
2512	7590	01/30/2006	EXAMINER	
PERMAN & GREEN 425 POST ROAD FAIRFIELD, CT 06824			JUNTIMA, NITTAYA	
			ART UNIT	PAPER NUMBER
			2663	
DATE MAILED: 01/30/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/030,286	Applicant(s) KORPELA ET AL.	
	Examiner Nittaya Juntima	Art Unit 2663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 07 January 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date 1/7/02.
- 4) ☐ Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Specification*

1. The appropriate section headings, e.g. BACKGROUND OF THE INVENTION, BRIEF SUMMARY OF THE INVENTION, BRIEF DESCRIPTION OF THE DRAWINGS, and DETAILED DESCRIPTION OF THE INVENTION, are missing and should be incorporated.

### *Claim Objections*

2. Claim 10 is objected to because of the following informalities:
  - in claim 10, line 2, "the common" should be changed to "a common" to avoid a lack of antecedent basis problem.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 6-9, 11-13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alamouti et al. ("Alamouti") (USPN 6,185,258 B1) in view of Petty (USPN 4,965,796).

Regarding claim 1, Alamouti teaches a method for transmitting a certain sequence of symbols ( $\{s_0, s_1, \dots\}$ ), where the symbols belonging to the sequence are transmitted using at least

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two antennas (antenna 11 and antenna 12 in Fig. 1) and the transmission of the sequence of symbols is characterized with a certain transmission pattern (Table 1), characterized in that:

the transmission of the sequence of symbols is started from a predefined antenna (antenna 11). See col. 3, lines 62-col. 4, lines 24, and claim 6.

In addition, Alamouti teaches that space diversity and time diversity are employed using the two antennas (col. 3, lines 25-37), and because a number of consecutive symbols as shown in table 1 must be transmitted over a period of time as the sequence of signals cannot go on indefinitely (col. 4, lines 18-24), therefore, a frame must be constructed of a certain number of consecutive symbols.

However, Alamouti does not teach when a partial transmission pattern is used in the end of a frame, the transmission pattern is started from the beginning in the beginning of a next frame.

In an analogous art, Petty teaches in Fig. 2 that when a partial framing bit pattern (a partial transmission pattern), e.g. 00 in slots 4 and 5 of the first frame 106, is used in the end of the first frame 106 (a frame), the framing bit pattern (the transmission pattern), e.g. 01100, is started from the beginning in the beginning of the second frame 106 (a next frame). See col. 4, lines 32-37, 61-63.

Given the teaching of Petty, it would have been obvious to one skilled in the art at the time the invention was made to modify the teaching of Alamouti by applying the concept of using the framing bit pattern from the beginning in the beginning of the next frame such that when a partial transmission pattern is used in the end of a frame, the transmission pattern is started from the beginning in the beginning of a next frame as recited in the claim. The

suggestion/motivation to do so would have been to enable a receiver to perform frame alignment using the recovered transmission pattern as taught by Petty (col. 6, lines 65-col. 7, lines 2).

Claims 12, and 13 and 15 are an arrangement (transmitter 10 in Fig. 1 of Alamouti) claim and network element (transmitter 10 in Fig. 1 of Alamouti) claims, respectively, corresponding to method claim 1, and are rejected under the same reason set forth in the rejection of claim 1 with the addition of control means (transmitter 10 in Fig. 1 of Alamouti must include a controller for controlling the operation of the transmitter 10), indication means which must be included in order to indicate antenna (antenna 11) to transmit the first symbol belonging to the sequence (Alamouti, col. 3, lines 60-col. 4, lines 24), and starting means which must be included in order for the transmitter to start transmission pattern from the beginning in the beginning of the next frame (Petty, col. 4, lines 32-37, 61-63, col. 6, lines 65-col. 7, lines 2).

Regarding claims 6, 7, and 8, Alamouti teaches that each frame (because a number of consecutive symbols as shown in table 1 must be transmitted over a period of time as the sequence of signals cannot go on indefinitely, col. 4, lines 18-24, therefore, a frame must be constructed of a certain number of consecutive symbols) consists of a certain number of consecutive time slots (time periods, i.e.  $t$ ,  $t+T$ , ...) and each time slot consists of a certain number of consecutive symbols, characterized in that "one/at least one/at least in one of the time slots at least" symbol belonging to the sequence of symbol is transmitted in each time slot (see table 1, col. 3, lines 62-col. 4, line 24, and claim 6).

Regarding claim 9, the combined teaching of Alamouti and Petty does not teach that the length of the transmission pattern is larger than the length of the frame. However, it would have been an obvious matter of design choice to include that the length of the transmission pattern is

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larger than the length of the frame, since such a modification would have involved a mere change in the length of a component which involves only routine skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

Regarding claim 11, Alamouti teaches that the sequence of symbols is transmitted in downlink direction in a cellular network (see Fig. 1 and col. 3, lines 62-col. 4, line 24).

5. Claims 2, 3, 4, and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over an art of record, Alamouti et al. ("Alamouti") (USPN 6,185,258 B1) in view of Petty (USPN 4,965,796), and further in view of Yamaura et al. ("Yamaura") (USPN 6,052,661).

Regarding claim 2, the combined teaching of Alamouti and Petty fails to explicitly teach the length of the transmission pattern is shorter than the length of a frame and the length of the frame is not a multiple of the length of the transmission pattern, characterized in that during each frame the transmission pattern is repeated until the length of the rest of the frame, which length is the length of the transmission pattern multiplied by the number of the repetition times within the frame subtracted from the length of the frame, is less than the length of the transmission pattern, and thereafter only a certain part, whose length is the length of the rest of the frame, of the transmission pattern is used.

However, in an analogous art, Yamaura teaches, as shown in Fig. 10b, the concept of repeating the delay parameter  $l$  (the transmission pattern) multiple times within a frame in a case when the delay parameter  $l$  is shorter than the frame length (the length of a frame), and thereafter only a certain part of the delay parameter  $l$  (the transmission pattern) is used. See col. 1, lines 59-col. 2, line 2.

Given the teaching of Yamaura, it would have been obvious to one skilled in the art at the time the invention was made to modify the combined teaching of Alamouti and Petty by applying the concept of repeating the delay parameter  $l$  multiple times within a frame in a case when the delay parameter  $l$  is shorter than the length of a frame, and thereafter only a certain part of the the delay parameter  $l$  is used, such that the length of the transmission pattern is shorter than the length of a frame and the length of the frame is not a multiple of the length of the transmission pattern, characterized in that during each frame the transmission pattern is repeated until the length of the rest of the frame, which length is the length of the transmission pattern multiplied by the number of the repetition times within the frame subtracted from the length of the frame, is less than the length of the transmission pattern, and thereafter only a certain part, whose length is the length of the rest of the frame, of the transmission pattern is used as recited in the claim. The suggestion/motivation to do so would have been to output the transmission pattern repeatedly until the frame length is reached as taught by Yamaura (col. 1, lines 64-65 and col. 2, lines 1-2).

Regarding claim 3, Alamouti does not teach that the transmission pattern is selected from the beginning of the transmission pattern.

However, as shown in Fig. 2 of an analogous art, Petty teaches that the framing bit pattern (the transmission pattern), e.g. 01100, is started from the beginning in the beginning of the second frame 106 (a next frame). See col. 4, lines 32-37, 61-63.

Given the teaching of Petty, it would have been obvious to one skilled in the art at the time the invention was made to modify the teaching of Alamouti by applying the concept of using the framing bit pattern from the beginning in the beginning of the next frame such that the

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transmission pattern is selected from the beginning of the transmission pattern as recited in the claim. The suggestion/motivation to do so would have been to enable a receiver to perform frame alignment using the recovered transmission pattern as taught by Petty (col. 6, lines 65-col. 7, lines 2).

Regarding claim 4, the combined teaching of Alamouti, Petty, and Yamaura fails to explicitly teach that the length of the transmission pattern is an even number and the length of the frame is an odd number. However, it would have been an obvious matter of design choice to include that the length of the transmission pattern is an even number and the length of the frame is an odd number, since such a modification would have involved a mere change in the size/length of a component and discovering an optimum value of a result effective variable involve only routine skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955) and *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claim 5, Alamouti teaches that the transmission pattern (Table 1) is an alternating pattern (col. 4, lines 15-24), but does not teach that the length of the transmission is two. However, it would have been an obvious matter of design choice to include that the length of the transmission pattern is an even number and the length of the frame is an odd number, since such a modification would have involved a mere change in the length of a component and discovering an optimum value of a result effective variable involve only routine skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955) and *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).



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6. Claims 10, 14, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over an art of record, Alamouti et al. ("Alamouti") (USPN 6,185,258 B1) in view of Petty (USPN 4,965,796), and further in view of an admitted prior art (the specification).

Regarding claim 10, Alamouti teaches that the transmission of the sequence of symbols is started from the primary antenna (antenna 11), see table 1 and col. 3, lines 62-col. 4, line 24. However, the combined teaching of Alamouti and Petty does not teach that the primary antenna transmits a common pilot signal.

An admitted prior art teaches that when transmission diversity and two antennas (TX1 and TX2 in Fig. 3) are in use, one of the antennas transmits a common pilot signal (CPICH, col. 4, lines 19-21).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the combined teaching of Alamouti and Petty such that the primary antenna transmits a common pilot signal would be included as recited in the claim. The suggestion/motivation to do so would have been to enable one of the antennas to transmit the common pilot channel similarly as when no transmission diversity is employed as taught by the admitted prior art (page 4, lines 20-21).

Regarding claims 14 and 16, Alamouti teaches that the network element (transmitter 10 in Fig. 1 of Alamouti) is a radio network controller/a base station (a base station, col. 1 lines 56-62 and col. 3, lines 26-37 and 66-64). However, Alamouti does not teach a spread spectrum system. The admitted prior art teaches a radio network controller (a base station) of a spread spectrum system (WCDMA, page 1, lines 17-20, page 3, lines 4-8, and page 4, lines 19-21). Given the teaching of the admitted prior art, it would have been obvious to one skilled in the art

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at the time the invention was made to include that the radio network controller is of a spread spectrum system as recited in the claim. The suggestion/motivation to do so would have been to enable the base station in the WCDMA network to provide transmission diversity using multiple antennas as taught by the admitted prior art (page 1, lines 18-20 and page 4, lines 19-21).

### *Conclusion*


7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nittaya Juntima whose telephone number is 571-272-3120. The examiner can normally be reached on Monday through Friday, 8:00 A.M - 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nittaya Juntima  
January 20, 2006

*NJ*

  
RICKY Q. NGO  
SUPERVISORY PATENT EXAMINER